

SEQUENCE LISTING

<110> Buschle, Michael
Frisch, Jurgen
Klade, Christoph
Lingnau, Karen
Zauner, Wolfgang
Zettlmeissl, Gerd

<120> HCV vaccines

<130> SONN:084US

<140> 10/564,429

<141> 2006-01-11

<150> EP 03450171.8

<151> 2004-03-12

<150> EP 04450062.7

<151> 2004-07-11

<150> PCT/EP2004/007540

<151> 2004-07-09

<160> 156

<170> PatentIn version 3.3

<210> 1

<211> 15

<212> PRT

<213> HCV vaccines

<400> 1

Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala
1 5 10 15

<210> 2

<211> 17

<212> PRT

<213> HCV vaccines

<400> 2

Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
1 5 10 15

Thr

<210> 3

<211> 15

<212> PRT

<213> HCV vaccines

<400> 3

Ala Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg Leu
1 5 10 15

<210> 4
<211> 16
<212> PRT
<213> HCV vaccines

<400> 4

Ala Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg Leu Arg
1 5 10 15

<210> 5
<211> 15
<212> PRT
<213> HCV vaccines

<400> 5

Ala Phe Cys Ser Ala Met Tyr Val Gly Asp Leu Cys Gly Ser Val
1 5 10 15

<210> 6
<211> 15
<212> PRT
<213> HCV vaccines

<400> 6

Ala Gly Ala Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val
1 5 10 15

<210> 7
<211> 9
<212> PRT
<213> HCV vaccines

<400> 7

Ala Arg Leu Ile Val Phe Pro Asp Leu
1 5

<210> 8
<211> 20
<212> PRT
<213> HCV vaccines

<400> 8

Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys
1 5 10 15

Met Ala Leu Tyr
20

<210> 9
<211> 10
<212> PRT
<213> HCV vaccines

<400> 9

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu
1 5 10

<210> 10

<211> 13

<212> PRT

<213> HCV vaccines

<400> 10

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Ala Ala Thr
1 5 10

<210> 11

<211> 16

<212> PRT

<213> HCV vaccines

<400> 11

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Pro Ser Val Ala Ala Thr
1 5 10 15

<210> 12

<211> 16

<212> PRT

<213> HCV vaccines

<400> 12

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
1 5 10 15

<210> 13

<211> 18

<212> PRT

<213> HCV vaccines

<400> 13

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
1 5 10 15

Ala Ala

<210> 14

<211> 19

<212> PRT

<213> HCV vaccines

<400> 14

Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
1 5 10 15

Ala Ala Thr

<210> 15
<211> 9
<212> PRT
<213> HCV vaccines

<400> 15

Ala Tyr Ser Gln Gln Thr Arg Gly Leu
1 5

<210> 16
<211> 10
<212> PRT
<213> HCV vaccines

<400> 16

Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu
1 5 10

<210> 17
<211> 9
<212> PRT
<213> HCV vaccines

<400> 17

Cys Ile Asn Gly Val Cys Trp Thr Val
1 5

<210> 18
<211> 15
<212> PRT
<213> HCV vaccines

<400> 18

Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val
1 5 10 15

<210> 19
<211> 9
<212> PRT
<213> HCV vaccines

<400> 19

Asp Leu Met Gly Tyr Ile Pro Ala Val
1 5

<210> 20
<211> 9
<212> PRT
<213> HCV vaccines

<400> 20

Asp Leu Met Gly Tyr Ile Pro Leu Val
1 5

<210> 21
<211> 10
<212> PRT
<213> HCV vaccines

<400> 21

Asp Leu Met Gly Tyr Ile Pro Ala Val Gly
1 5 10

<210> 22
<211> 10
<212> PRT
<213> HCV vaccines

<400> 22

Asp Leu Met Gly Tyr Ile Pro Leu Val Gly
1 5 10

<210> 23
<211> 12
<212> PRT
<213> HCV vaccines

<400> 23

Asp Leu Met Gly Tyr Ile Pro Ala Val Gly Ala Pro
1 5 10

<210> 24
<211> 12
<212> PRT
<213> HCV vaccines

<400> 24

Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro
1 5 10

<210> 25
<211> 13
<212> PRT
<213> HCV vaccines

<400> 25

Asp Leu Met Gly Tyr Ile Pro Ala Val Gly Ala Pro Leu
1 5 10

<210> 26
<211> 13
<212> PRT
<213> HCV vaccines

<400> 26

Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu
1 5 10

<210> 27

<211> 14

<212> PRT

<213> HCV vaccines

<400> 27

Asp Leu Met Gly Tyr Ile Pro Ala Leu Val Gly Ala Pro Leu
1 5 10

<210> 28

<211> 9

<212> PRT

<213> HCV vaccines

<400> 28

Asp Leu Met Gly Tyr Ile Pro Ala Val
1 5

<210> 29

<211> 9

<212> PRT

<213> HCV vaccines

<400> 29

Asp Leu Met Gly Tyr Ile Pro Leu Val
1 5

<210> 30

<211> 11

<212> PRT

<213> HCV vaccines

<400> 30

Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10

<210> 31

<211> 13

<212> PRT

<213> HCV vaccines

<400> 31

Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu
1 5 10

<210> 32

<211> 10

<212> PRT

<213> HCV vaccines

<400> 32

Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu
1 5 10

<210> 33

<211> 9

<212> PRT

<213> HCV vaccines

<400> 33

Asp Tyr Pro Tyr Arg Leu Trp His Tyr
1 5

<210> 34

<211> 15

<212> PRT

<213> HCV vaccines

<400> 34

Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe
1 5 10 15

<210> 35

<211> 20

<212> PRT

<213> HCV vaccines

<400> 35

Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr
1 5 10 15

Ile Phe Lys Ile
20

<210> 36

<211> 20

<212> PRT

<213> HCV vaccines

<400> 36

Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr
1 5 10 15

Ile Phe Lys Val
20

<210> 37

<211> 15

<212> PRT

<213> HCV vaccines

<400> 37

Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Tyr
1 5 10 15

<210> 38
<211> 20
<212> PRT
<213> HCV vaccines

<400> 38

Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Tyr Thr
1 5 10 15

Ile Phe Lys Ile
20

<210> 39
<211> 9
<212> PRT
<213> HCV vaccines

<400> 39

Glu Leu Ser Pro Leu Leu Leu Ser Thr
1 5

<210> 40
<211> 18
<212> PRT
<213> HCV vaccines

<400> 40

Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp
1 5 10 15

Tyr Glu

<210> 41
<211> 18
<212> PRT
<213> HCV vaccines

<400> 41

Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp
1 5 10 15

Tyr Glu

<210> 42
<211> 18
<212> PRT
<213> HCV vaccines

<400> 42

Phe Asp Ser Val Val Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp
1 5 10 15

Tyr Glu

<210> 43

<211> 18

<212> PRT

<213> HCV vaccines

<400> 43

Phe Asp Ser Val Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp
1 5 10 15

Tyr Glu

<210> 44

<211> 18

<212> PRT

<213> HCV vaccines

<400> 44

Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp
1 5 10 15

Tyr Glu

<210> 45

<211> 15

<212> PRT

<213> HCV vaccines

<400> 45

Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala
1 5 10 15

<210> 46

<211> 16

<212> PRT

<213> HCV vaccines

<400> 46

Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val
1 5 10 15

<210> 47

<211> 16

<212> PRT
<213> HCV vaccines

<400> 47

Gly Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr
1 5 10 15

<210> 48
<211> 20
<212> PRT
<213> HCV vaccines

<400> 48

Gly Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr
1 5 10 15

Cys Ile Asn Gly
20

<210> 49
<211> 25
<212> PRT
<213> HCV vaccines

<400> 49

Gly Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr
1 5 10 15

Cys Ile Asn Gly Val Cys Trp Thr Val
20 25

<210> 50
<211> 9
<212> PRT
<213> HCV vaccines

<400> 50

Gly Pro Arg Leu Gly Val Arg Ala Thr
1 5

<210> 51
<211> 11
<212> PRT
<213> HCV vaccines

<400> 51

Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5 10

<210> 52
<211> 15
<212> PRT
<213> HCV vaccines

<400> 52

Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln
1 5 10 15

<210> 53

<211> 22

<212> PRT

<213> HCV vaccines

<400> 53

Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln
1 5 10 15

Thr Arg Gly Leu Leu Gly
20

<210> 54

<211> 25

<212> PRT

<213> HCV vaccines

<400> 54

Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln
1 5 10 15

Thr Arg Gly Leu Leu Gly Cys Ile Val
20 25

<210> 55

<211> 15

<212> PRT

<213> HCV vaccines

<400> 55

Gly Ser Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly
1 5 10 15

<210> 56

<211> 15

<212> PRT

<213> HCV vaccines

<400> 56

Gly Val Leu Phe Gly Leu Ala Tyr Phe Ser Met Val Gly Asn Trp
1 5 10 15

<210> 57

<211> 23

<212> PRT

<213> HCV vaccines

<400> 57

Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg
1 5 10 15

Gly Leu Leu Gly Cys Ile Val
20

<210> 58
<211> 10
<212> PRT
<213> HCV vaccines

<400> 58

Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu
1 5 10

<210> 59
<211> 10
<212> PRT
<213> HCV vaccines

<400> 59

Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu
1 5 10

<210> 60
<211> 14
<212> PRT
<213> HCV vaccines

<400> 60

Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr
1 5 10

<210> 61
<211> 9
<212> PRT
<213> HCV vaccines

<400> 61

His Met Trp Asn Phe Ile Ser Gly Ile
1 5

<210> 62
<211> 18
<212> PRT
<213> HCV vaccines

<400> 62

His Met Trp Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser
1 5 10 15

Thr Leu

<210> 63
<211> 23
<212> PRT
<213> HCV vaccines

<400> 63

His Met Trp Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser
1 5 10 15

Thr Leu Pro Gly Asn Pro Ala
20

<210> 64
<211> 17
<212> PRT
<213> HCV vaccines

<400> 64

His Met Trp Asn Phe Ile Ser Gly Ile Ser Thr Leu Pro Gly Asn Pro
1 5 10 15

Ala

<210> 65
<211> 17
<212> PRT
<213> HCV vaccines

<400> 65

His Met Trp Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro
1 5 10 15

Ala

<210> 66
<211> 10
<212> PRT
<213> HCV vaccines

<400> 66

His Tyr Pro Cys Thr Val Asn Phe Thr Ile
1 5 10

<210> 67
<211> 10
<212> PRT
<213> HCV vaccines

<400> 67

His Tyr Pro Cys Thr Val Asn Tyr Thr Ile
1 5 10

<210> 68
<211> 26
<212> PRT
<213> HCV vaccines

<400> 68

Ile Cys Ile Cys Ile Cys Ile Cys Ile Cys Ile Cys Ile Cys Ile Cys
1 5 10 15

Ile Cys Ile Cys Ile Cys Ile Cys Ile Cys
20 25

<210> 69
<211> 15
<212> PRT
<213> HCV vaccines

<400> 69

Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
1 5 10 15

<210> 70
<211> 26
<212> PRT
<213> HCV vaccines

<400> 70

Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala
1 5 10 15

Gly Val Ala Gly Ala Leu Val Ala Phe Lys
20 25

<210> 71
<211> 9
<212> PRT
<213> HCV vaccines

<400> 71

Ile Leu Ala Gly Tyr Gly Ala Gly Val
1 5

<210> 72
<211> 22
<212> PRT
<213> HCV vaccines

<400> 72

Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr Leu Leu Pro

1 5 10 15

Arg Arg Gly Pro Arg Leu
20

<210> 73
<211> 29
<212> PRT
<213> HCV vaccines

<400> 73

Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr Leu Leu Pro
1 5 10 15

Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
20 25

<210> 74
<211> 22
<212> PRT
<213> HCV vaccines

<400> 74

Lys Phe Pro Gly Gly Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly
1 5 10 15

Val Arg Ala Thr Arg Lys
20

<210> 75
<211> 11
<212> PRT
<213> HCV vaccines

<400> 75

Lys Leu Lys Leu Leu Leu Leu Lys Leu Lys
1 5 10

<210> 76
<211> 12
<212> PRT
<213> HCV vaccines

<400> 76

Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr
1 5 10

<210> 77
<211> 15
<212> PRT
<213> HCV vaccines

<400> 77

Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe
1 5 10 15

<210> 78
<211> 9
<212> PRT
<213> HCV vaccines

<400> 78

Leu Glu Asp Arg Asp Arg Ser Glu Leu
1 5

<210> 79
<211> 16
<212> PRT
<213> HCV vaccines

<400> 79

Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr
1 5 10 15

<210> 80
<211> 19
<212> PRT
<213> HCV vaccines

<400> 80

Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr
1 5 10 15

Thr Glu Trp

<210> 81
<211> 15
<212> PRT
<213> HCV vaccines

<400> 81

Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
1 5 10 15

<210> 82
<211> 10
<212> PRT
<213> HCV vaccines

<400> 82

Leu Ile Asn Thr Asn Gly Ser Trp His Ile
1 5 10

<210> 83

<211> 16
<212> PRT
<213> HCV vaccines

<400> 83

Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn
1 5 10 15

<210> 84
<211> 21
<212> PRT
<213> HCV vaccines

<400> 84

Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn
1 5 10 15

Cys Asn Asp Ser Leu
20

<210> 85
<211> 10
<212> PRT
<213> HCV vaccines

<400> 85

Leu Leu Phe Asn Ile Leu Gly Gly Trp Val
1 5 10

<210> 86
<211> 8
<212> PRT
<213> HCV vaccines

<400> 86

Leu Pro Arg Arg Gly Pro Arg Leu
1 5

<210> 87
<211> 15
<212> PRT
<213> HCV vaccines

<400> 87

Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5 10 15

<210> 88
<211> 15
<212> PRT
<213> HCV vaccines

<400> 88

Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala
1 5 10 15

<210> 89
<211> 15
<212> PRT
<213> HCV vaccines

<400> 89

Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr Ile Phe Lys Val
1 5 10 15

<210> 90
<211> 15
<212> PRT
<213> HCV vaccines

<400> 90

Leu Trp His Tyr Pro Cys Thr Val Asn Tyr Thr Ile Phe Lys Ile
1 5 10 15

<210> 91
<211> 9
<212> PRT
<213> HCV vaccines

<400> 91

Met Ser Thr Asn Pro Lys Pro Gln Lys
1 5

<210> 92
<211> 9
<212> PRT
<213> HCV vaccines

<400> 92

Met Ser Thr Asn Pro Lys Pro Gln Arg
1 5

<210> 93
<211> 17
<212> PRT
<213> HCV vaccines

<400> 93

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15

Arg

<210> 94
<211> 20

<212> PRT
<213> HCV vaccines

<400> 94

Met Trp Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr
1 5 10 15

Leu Pro Gly Asn
20

<210> 95
<211> 22
<212> PRT
<213> HCV vaccines

<400> 95

Met Trp Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr
1 5 10 15

Leu Pro Gly Asn Pro Ala
20

<210> 96
<211> 18
<212> PRT
<213> HCV vaccines

<400> 96

Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro
1 5 10 15

Gly Asn

<210> 97
<211> 20
<212> PRT
<213> HCV vaccines

<400> 97

Asn Phe Ile Ser Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro
1 5 10 15

Gly Asn Pro Ala
20

<210> 98
<211> 17
<212> PRT
<213> HCV vaccines

<400> 98

Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser
1 5 10 15

Leu

<210> 99
<211> 11
<212> PRT
<213> HCV vaccines

<400> 99

Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg
1 5 10

<210> 100
<211> 9
<212> PRT
<213> HCV vaccines

<400> 100

Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5

<210> 101
<211> 9
<212> PRT
<213> HCV vaccines

<400> 101

Gln Tyr Leu Ala Gly Leu Ser Thr Leu
1 5

<210> 102
<211> 9
<212> PRT
<213> HCV vaccines

<400> 102

Arg Lys Thr Lys Arg Asn Thr Asn Arg
1 5

<210> 103
<211> 9
<212> PRT
<213> HCV vaccines

<400> 103

Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5

<210> 104
<211> 10

<212> PRT
<213> HCV vaccines

<400> 104

Arg Leu Ile Val Phe Pro Asp Leu Gly Val
1 5 10

<210> 105
<211> 9
<212> PRT
<213> HCV vaccines

<400> 105

Arg Leu Leu Ala Pro Ile Thr Ala Tyr
1 5

<210> 106
<211> 10
<212> PRT
<213> HCV vaccines

<400> 106

Arg Met Tyr Val Gly Gly Val Glu His Arg
1 5 10

<210> 107
<211> 11
<212> PRT
<213> HCV vaccines

<400> 107

Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
1 5 10

<210> 108
<211> 9
<212> PRT
<213> HCV vaccines

<400> 108

Arg Ser Glu Leu Ser Pro Leu Leu Leu
1 5

<210> 109
<211> 10
<212> PRT
<213> HCV vaccines

<400> 109

Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu
1 5 10

<210> 110

<211> 9
<212> PRT
<213> HCV vaccines

<400> 110

Arg Val Cys Glu Lys Met Ala Leu Tyr
1 5

<210> 111
<211> 10
<212> PRT
<213> HCV vaccines

<400> 111

Ser Met Ser Tyr Thr Trp Thr Gly Ala Leu
1 5 10

<210> 112
<211> 13
<212> PRT
<213> HCV vaccines

<400> 112

Ser Met Ser Tyr Thr Trp Thr Gly Ala Leu Ile Thr Pro
1 5 10

<210> 113
<211> 10
<212> PRT
<213> HCV vaccines

<400> 113

Ser Trp His Ile Asn Arg Thr Ala Leu Asn
1 5 10

<210> 114
<211> 9
<212> PRT
<213> HCV vaccines

<400> 114

Ser Tyr Thr Trp Thr Gly Ala Leu Ile
1 5

<210> 115
<211> 12
<212> PRT
<213> HCV vaccines

<400> 115

Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly
1 5 10

<210> 116
<211> 15
<212> PRT
<213> HCV vaccines

<400> 116

Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Val
1 5 10 15

<210> 117
<211> 15
<212> PRT
<213> HCV vaccines

<400> 117

Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val Glu His Arg
1 5 10 15

<210> 118
<211> 15
<212> PRT
<213> HCV vaccines

<400> 118

Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg
1 5 10 15

<210> 119
<211> 9
<212> PRT
<213> HCV vaccines

<400> 119

Thr Ile Leu Gly Ile Gly Thr Val Leu
1 5

<210> 120
<211> 8
<212> PRT
<213> HCV vaccines

<400> 120

Thr Ile Asn Tyr Thr Ile Phe Lys
1 5

<210> 121
<211> 9
<212> PRT
<213> HCV vaccines

<400> 121

Thr Pro Ala Glu Thr Thr Val Arg Leu
1 5

<210> 122
<211> 16
<212> PRT
<213> HCV vaccines

<400> 122

Thr Gln Ser Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val
1 5 10 15

<210> 123
<211> 15
<212> PRT
<213> HCV vaccines

<400> 123

Thr Arg Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg Ala
1 5 10 15

<210> 124
<211> 9
<212> PRT
<213> HCV vaccines

<400> 124

Thr Thr Ile Leu Gly Ile Gly Thr Val
1 5

<210> 125
<211> 15
<212> PRT
<213> HCV vaccines

<400> 125

Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr
1 5 10 15

<210> 126
<211> 15
<212> PRT
<213> HCV vaccines

<400> 126

Thr Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln
1 5 10 15

<210> 127
<211> 9
<212> PRT
<213> HCV vaccines

<400> 127

Thr Val Asn Phe Thr Ile Phe Lys Val
1 5

<210> 128
<211> 15
<212> PRT
<213> HCV vaccines

<400> 128

Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly
1 5 10 15

<210> 129
<211> 9
<212> PRT
<213> HCV vaccines

<400> 129

Thr Val Asn Tyr Thr Ile Phe Lys Ile
1 5

<210> 130
<211> 15
<212> PRT
<213> HCV vaccines

<400> 130

Thr Val Asn Tyr Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly
1 5 10 15

<210> 131
<211> 9
<212> PRT
<213> HCV vaccines

<400> 131

Val Ala Gly Ala Leu Val Ala Phe Lys
1 5

<210> 132
<211> 32
<212> PRT
<213> HCV vaccines

<400> 132

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe
1 5 10 15

Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 133
<211> 32
<212> PRT
<213> HCV vaccines

<400> 133

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe
1 5 10 15

Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 134

<211> 32

<212> PRT

<213> HCV vaccines

<400> 134

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Tyr
1 5 10 15

Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 135

<211> 32

<212> PRT

<213> HCV vaccines

<400> 135

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Tyr
1 5 10 15

Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 136

<211> 32

<212> PRT

<213> HCV vaccines

<400> 136

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Phe
1 5 10 15

Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 137

<211> 32

<212> PRT

<213> HCV vaccines

<400> 137

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Phe
1 5 10 15

Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 138
<211> 32
<212> PRT
<213> HCV vaccines

<400> 138

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr
1 5 10 15

Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 139
<211> 32
<212> PRT
<213> HCV vaccines

<400> 139

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr
1 5 10 15

Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 140
<211> 32
<212> PRT
<213> HCV vaccines

<400> 140

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe
1 5 10 15

Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 141
<211> 32
<212> PRT
<213> HCV vaccines

<400> 141

Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Tyr
1 5 10 15

Thr Ile Phe Lys Ile Arg Met Tyr Val Gly Gly Val Glu His Arg Leu
20 25 30

<210> 142
<211> 10
<212> PRT
<213> HCV vaccines

<400> 142

Val Leu Cys Glu Cys Tyr Asp Ala Gly Ala
1 5 10

<210> 143
<211> 20
<212> PRT
<213> HCV vaccines

<400> 143

Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Ile Asn Gly Val
1 5 10 15

Cys Trp Thr Val
20

<210> 144
<211> 18
<212> PRT
<213> HCV vaccines

<400> 144

Val Val Cys Cys Ser Met Ser Tyr Thr Trp Thr Gly Ala Leu Ile Thr
1 5 10 15

Pro Cys

<210> 145
<211> 15
<212> PRT
<213> HCV vaccines

<400> 145

Val Val Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp Tyr Glu
1 5 10 15

<210> 146
<211> 10
<212> PRT
<213> HCV vaccines

<400> 146

Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu
1 5 10

<210> 147

<211> 17
<212> PRT
<213> HCV vaccines

<400> 147

Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg
1 5 10 15

Lys

<210> 148
<211> 9
<212> PRT
<213> HCV vaccines

<400> 148

Tyr Leu Val Ala Tyr Gln Ala Thr Val
1 5

<210> 149
<211> 21
<212> PRT
<213> HCV vaccines

<400> 149

Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro
1 5 10 15

Pro Pro Ser Trp Asp
20

<210> 150
<211> 9
<212> PRT
<213> HCV vaccines

<400> 150

Tyr Met Asp Gly Thr Met Ser Gln Val
1 5

<210> 151
<211> 15
<212> PRT
<213> HCV vaccines

<400> 151

Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr
1 5 10 15

<210> 152
<211> 9
<212> PRT

<213> Artificial

<220>

<223> Artificial polypeptide

<220>

<221> VARIANT

<222> (1)..(1)

<223> wherein Xaa represents any positively charged amino acid.

<220>

<221> VARIANT

<222> (2)..(2)

<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>

<221> VARIANT

<222> (3)..(3)

<223> wherein Xaa represents any positively charged amino acid.

<220>

<221> VARIANT

<222> (4)..(6)

<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>

<221> VARIANT

<222> (7)..(7)

<223> wherein Xaa represents any positively charged amino acid.

<220>

<221> VARIANT

<222> (8)..(8)

<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>

<221> VARIANT

<222> (9)..(9)

<223> wherein Xaa represents any positively charged amino acid.

<400> 152

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

<210> 153

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Artificial polypeptide

<220>

<221> VARIANT

<222> (1)..(1)

<223> wherein Xaa represents any positively charged amino acid.

<220>

<221> VARIANT

<222> (2)..(2)

<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (3)..(3)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (4)..(7)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (8)..(8)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (9)..(9)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (10)..(10)
<223> wherein Xaa represents any positively charged amino acid.

<400> 153

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 154
<211> 11
<212> PRT
<213> Artificial

<220>
<223> Artificial polypeptide

<220>
<221> VARIANT
<222> (1)..(1)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (2)..(2)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (3)..(3)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (4)..(8)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (9)..(9)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (10)..(10)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (11)..(11)
<223> wherein Xaa represents any positively charged amino acid.

<400> 154

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 155
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Artificial polypeptide

<220>
<221> VARIANT
<222> (1)..(1)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (2)..(2)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (3)..(3)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (4)..(9)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (10)..(10)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (11)..(11)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (12)..(12)
<223> wherein Xaa represents any positively charged amino acid.

<400> 155

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 156
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Artificial polypeptide

<220>
<221> VARIANT
<222> (1)..(1)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (2)..(2)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (3)..(3)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (4)..(10)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (11)..(11)
<223> wherein Xaa represents any positively charged amino acid.

<220>
<221> VARIANT
<222> (12)..(12)
<223> wherein Xaa represents Leu, Val, Ile, Phe, or Trp.

<220>
<221> VARIANT
<222> (13)..(13)
<223> wherein Xaa represents any positively charged amino acid.

<400> 156

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10